AMENDMENTS TO THE CLAIMS

This listing of claims replaces all listing and versions of claims in this application.

Listing of Claims:

1. (Currently Amended) A method for obtaining an acid gas stream having a pressure of from 3 to 30 bar ~~by removal~~ comprising of the acid gases from a liquid stream comprising as impurities H_2S and if appropriate other acid gases, the molar fraction of H_2S, based on the total amount of acid gases, being at least 50 mol%, which comprises

a) in at least one absorption step, bringing the fluid stream into intimate contact with a liquid absorption medium and thus producing a fluid stream substantially freed from acid gases and an acid-gas-loaded liquid absorption medium (step a),

b) separating from one another the fluid stream substantially freed from acid gases and the acid-gas-loaded liquid absorption medium (step b),

c) separating, by heating and if appropriate expansion or stripping, the acid-gas-loaded liquid absorption medium into an acid gas stream having a pressure of from 3 to 30 bar and a regenerated liquid absorption medium (step c)

d) passing the regenerated liquid absorption medium into a heat exchanger and cooling it there, by using a part of its thermal energy to heat up the acid-gas-loaded liquid absorption medium in step (c) (step d)

e) recirculating the regenerated liquid absorption medium to step a) (step e).

2. (Original) The method according to claim 1, wherein the acid gas stream to be obtained is at a pressure of from 5 to 30 bar.

3. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein, as liquid absorption medium, use is made of a chemical solvent selected from the group consisting of

- solutions consisting principally of aliphatic or cycloaliphatic amines having from 2 to 12 carbon atoms, alkanolamines having from 2 to 12 carbon atoms, cyclic amines where 1 or 2 nitrogen atoms, together with 1 or 2 alkanediyl groups, form 5-, 6- or 7-membered rings, mixtures of the abovementioned solutions, aqueous solutions of the abovementioned mixtures and solutions,
- aqueous solutions comprising salts of amino acids
- aqueous potash solutions which if appropriate comprise piperazine or monoethanolamine (MEA)
- aqueous NaOH solution or milk of lime.

4. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein, as absorption medium, use is made of a physical solvent selected from the group consisting of cyclotetramethylene sulfone (sulfolane) and derivatives thereof, aliphatic acid amides (acetylmorpholine, N-formylmorpholine), NMP (N-methylpyrrolidone), propylene carbonate, N-alkylated pyrrolidones and corresponding piperidones, methanol and mixtures of dialkyl ethers of polyethylene glycols.

5. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein, as scrubbing solution, use is made of an aqueous solution comprising methyldiethanolamine and piperazine.

6. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein, in step (a) a liquid absorption medium is used which comprises water and step (c) is carried out by passing the heated acid-gas-loaded liquid absorption medium to the top of a column and conducting it there to the bottom of the column in countercurrent flow to a steam stream in the column, and producing a steam stream by heating the regenerated liquid absorption medium formed there to the extent that the water present in the liquid absorption medium to be regenerated vaporizes in part.

7. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein, in step (d), in the heat exchanger the temperature difference between the exiting regenerated liquid absorption medium and the incoming loaded liquid absorption medium is from 5 to -100°K.

8. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein the temperature difference between the regenerated liquid absorption medium which is incoming in step (a) to the heat exchanger and the regenerated liquid absorption medium exiting from the heat exchanger is from 50 to 200°K.

9. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein the acid gases present in the fluid stream are a mixture which comprises, in addition to H_2S, other acid gases selected from a group consisting of CO_2, H_2S, COS, mercaptans, SO_3, SO_2, CS_2 and HCN.

10. (Original) The process as claimed in claim 8, wherein the CO_2 fraction of the other acid gases is at least 50 mol%.

11. (Currently Amended) The process according to ~~one of the preceding claims~~ claim 1, wherein the acid gas stream is passed into underground seams, is dissolved in deep water layers of open bodies of water or is passed into crude oil deposits.

12. (New) The process according to claim 2, wherein, as liquid absorption medium, use is made of a chemical solvent selected from the group consisting of

- solutions consisting principally of aliphatic or cycloaliphatic amines having from 2 to 12 carbon atoms, alkanolamines having from 2 to 12 carbon atoms, cyclic amines where 1 or 2 nitrogen atoms, together with 1 or 2 alkanediyl groups, form 5-, 6- or 7-membered rings, mixtures of the abovementioned solutions, aqueous solutions of the abovementioned mixtures and solutions,
- aqueous solutions comprising salts of amino acids
- aqueous potash solutions which if appropriate comprise piperazine or

monoethanolamine (MEA)

- aqueous NaOH solution or milk of lime.

13. (New) The process according to claim 2, wherein, as absorption medium, use is made of a physical solvent selected from the group consisting of cyclotetramethylene sulfone (sulfolane) and derivatives thereof, aliphatic acid amides (acetylmorpholine, N-formylmorpholine), NMP (N-methylpyrrolidone), propylene carbonate, N-alkylated pyrrolidones and corresponding piperidones, methanol and mixtures of dialkyl ethers of polyethylene glycols.

14. (New) The process according to claim 3, wherein, as absorption medium, use is made of a physical solvent selected from the group consisting of cyclotetramethylene sulfone (sulfolane) and derivatives thereof, aliphatic acid amides (acetylmorpholine, N-formylmorpholine), NMP (N-methylpyrrolidone), propylene carbonate, N-alkylated pyrrolidones and corresponding piperidones, methanol and mixtures of dialkyl ethers of polyethylene glycols.

15. (New) The process according to claim 2, wherein, as scrubbing solution, use is made of an aqueous solution comprising methyldiethanolamine and piperazine.

16. (New) The process according to claim 3, wherein, as scrubbing solution, use is made of an aqueous solution comprising methyldiethanolamine and piperazine.

17. (New) The process according to claim 4, wherein, as scrubbing solution, use is made of an aqueous solution comprising methyldiethanolamine and piperazine.

18. (New) The process according to claim 2, wherein, in step (a) a liquid absorption medium is used which comprises water and step (c) is carried out by passing the heated acid-gas-loaded liquid absorption medium to the top of a column and conducting it there to the bottom of the column in countercurrent flow to a steam stream in the column, and producing a steam stream by heating the regenerated liquid absorption medium formed there to the extent that the water present in the liquid absorption medium to be regenerated vaporizes in part.

19. (New) The process according to claim 3, wherein, in step (a) a liquid absorption medium is used which comprises water and step (c) is carried out by passing the heated acid-gas-loaded liquid absorption medium to the top of a column and conducting it there to the bottom of the column in countercurrent flow to a steam stream in the column, and producing a steam stream by heating the regenerated liquid absorption medium formed there to the extent that the water present in the liquid absorption medium to be regenerated vaporizes in part.

20. (New) The process according to claim 4, wherein, in step (a) a liquid absorption medium is used which comprises water and step (c) is carried out by passing the heated acid-gas-loaded liquid absorption medium to the top of a column and conducting it there to the bottom of the column in countercurrent flow to a steam stream in the column, and producing a steam stream by heating the regenerated liquid absorption medium formed there to the extent that the water present in the liquid absorption medium to be regenerated vaporizes in part.